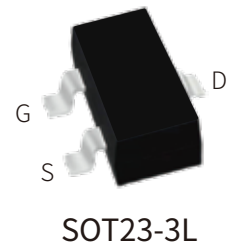


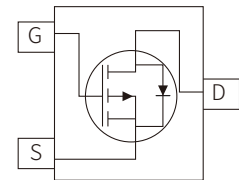
FEATURES

- | Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- | Excellent ON resistance for higher DC current :
 $R_{DS(ON)} < 45m\Omega @ V_{GS} = -10V$ (Type: $38m\Omega$)
- | $V_{DS} = -30V, I_D = -7A$
- | Supper high density cell design
- | High performance trench technology
- | High Power and current handing capability
- | Surface Mount Package



APPLICATION

- | Load/Power Switching for portable device
- | Charging device
- | Power supply converters circuit



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Continuous Drain Current	I_D	$T_c = 25^\circ\text{C}$	-7
		$T_c = 70^\circ\text{C}$	-4.5
Pulsed Drain Current	I_{DM}	-25	A
Gate Source Voltage	V_{GSS}	± 20	V
Total Power Dissipation $T_c = 25^\circ\text{C}$	P_D	3	W
Junction-to-Ambient Thermal Resistance ^a	$R_{\theta JA}$	83.3	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

^a Surface mounted on FR-5 Board using 1 square inch pad size, 1oz copper

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =-250μA	-30	-33		V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.6	-2.5	V
Drain Cut-Off Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±0.1	μA
Drain Source ON Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-6.5A		38	45	mΩ
		V _{GS} =-4.5V, I _D =-5A		53	72	mΩ
Forward Trans conductance	gFS	V _{DS} =-5V, I _D =-6.5A		14		S
Dynamic Characteristics						
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V, I _D =-6.5A		9.6		nC
Gate-Source Charge	Q _{gs}			1.8		nC
Gate-Drain Charge	Q _{gd}			2.3		nC
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-15V, f=1.0MHz		520		pF
Output capacitance	C _{oss}			102		pF
Reverse transfer capacitance	C _{rss}			62		pF
Turn-on Delay Time	t _{d(on)}			7.5		ns
Turn-on Rise Time	t _r	V _{DS} =-10V, V _{GS} =-10V I _D =-4.0A, R _G =3Ω		5.5		ns
Turn-Off Delay Time	t _{d(off)}			19		ns
Turn-Off Fall Time	t _f			7		ns
Drain Source Body Diode Characteristics						
Source Drain Diode Forward Voltage	V _{SD}	I _S =-6.5A, V _{GS} =0V			-1.2	V

Notes:

- 1.Pulse Test:Pulse Width≤300μs,Duty Cycle≤2%.
- 2.Dynamic parameters cannot be verified
- 3.Avalanche energy testing conditions:L = 8.5mH, I_{AS} = 100A, V_{DD} =30V, Starting T_J = 25°C

PARAMETER CHARACTERISTIC CURVE

Figure 1: Output Characteristics

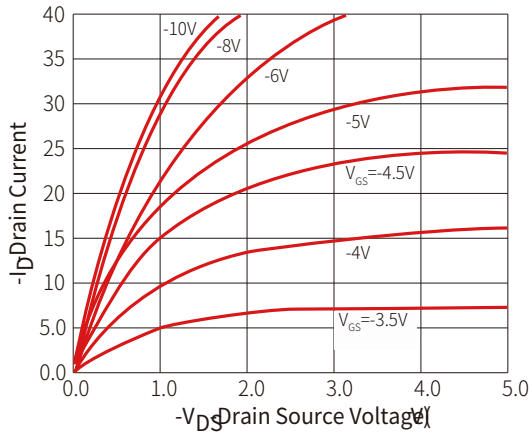


Figure 2: Transfer Characteristics

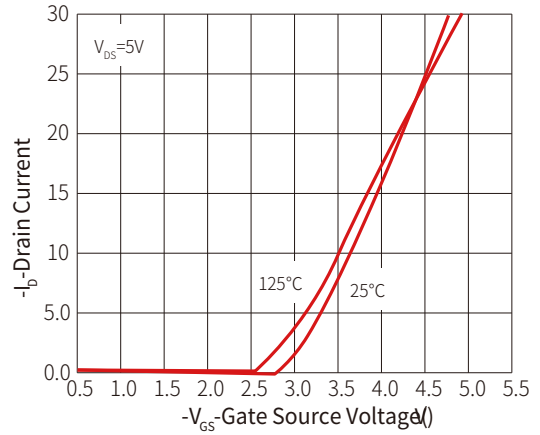


Figure 3: Rds(on)-Drain Current

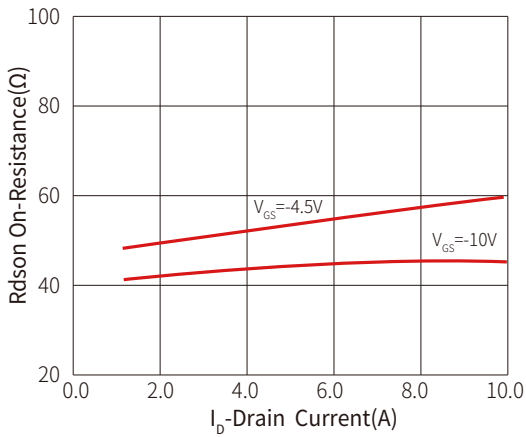


Figure 4: Rds(on)-Junction Temperature

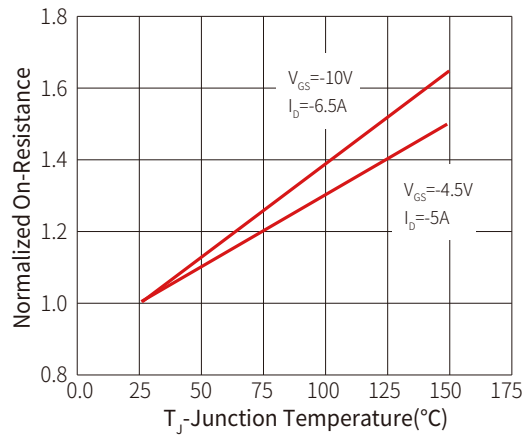


Figure 5: Gate Charge

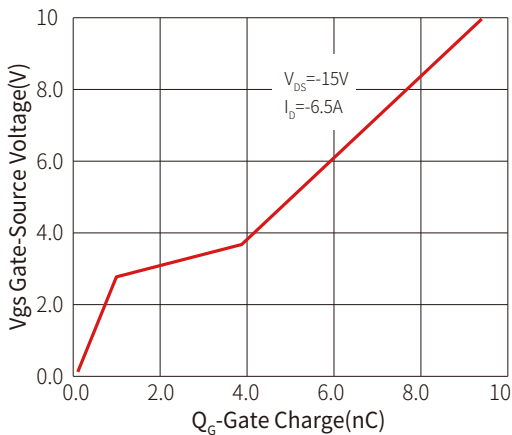


Figure 6: Source-Drain Diode Forward

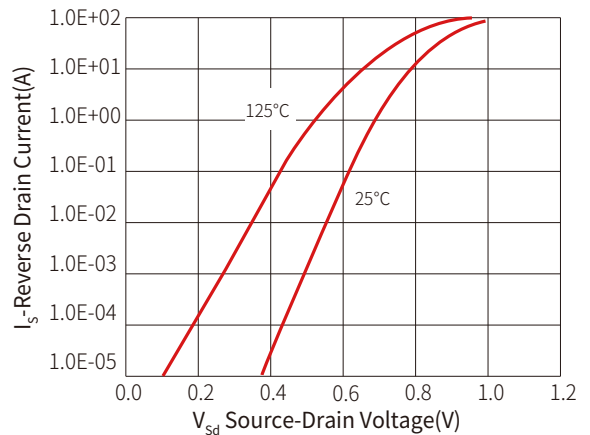


Figure 7: Capacitance vs Vds

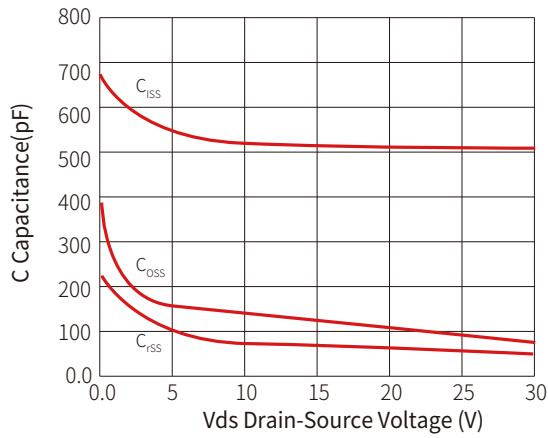


Figure 8: Safe Operation Area

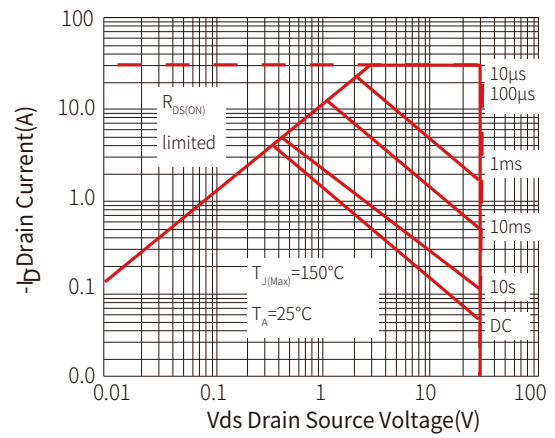


Figure 9: BV_{DSS} vs Junction Temperature

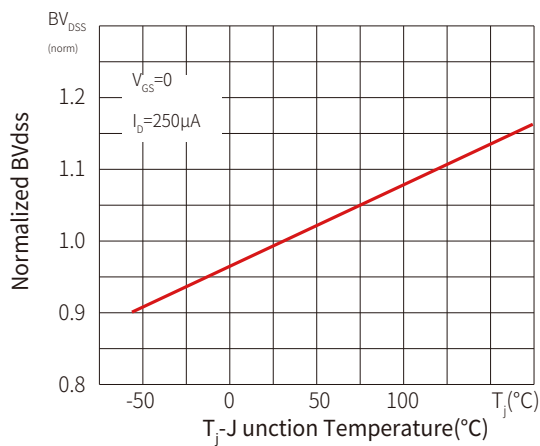


Figure 10: V_{GS(th)} vs Junction Temperature

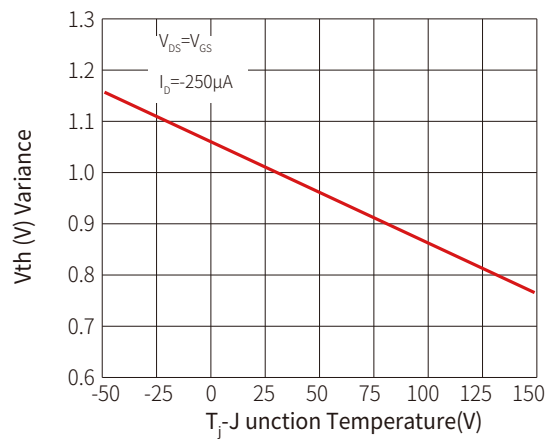
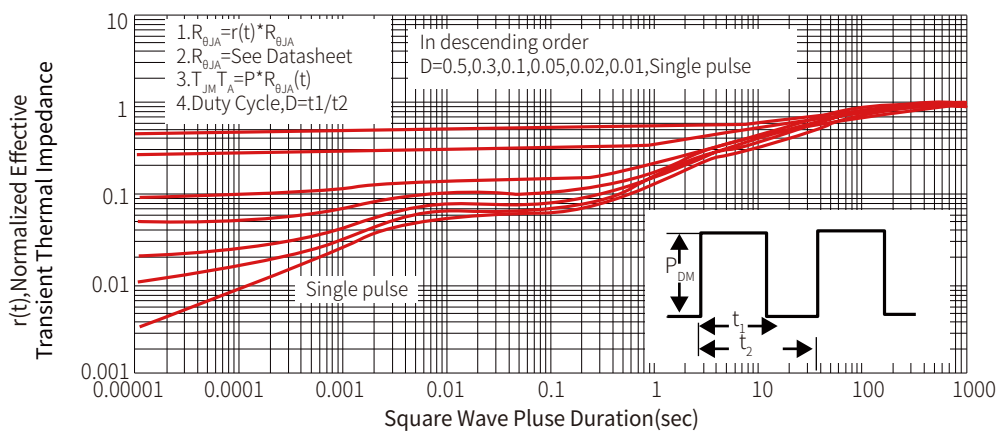
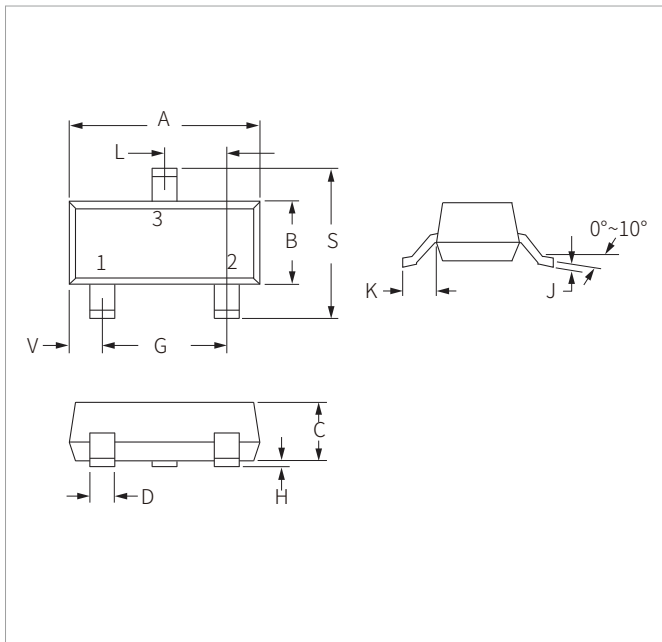


Figure 11: Normalized Maximum Transient Thermal Impedance

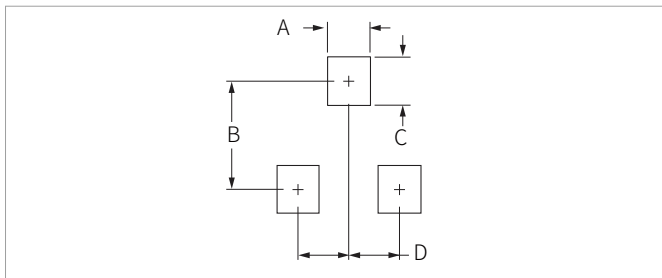


SOT23-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.15	0.110	0.124
B	1.50	1.70	0.060	0.070
C	1.00	1.30	0.039	0.051
D	0.37	0.50	0.015	0.020
G	1.78	2.10	0.070	0.083
H	0.01	0.15	0.001	0.006
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.60	3.00	0.102	0.118
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.70	1.00	0.028	0.039
B	2.30	2.50	0.090	0.098
C	0.70	1.00	0.028	0.039
D	0.80	1.10	0.032	0.043

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPM23LT7N30	SOT23-3L	3000PCS	7"

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Minhang Shanghai China
201000

Hotline

400-021-5756

Web

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Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

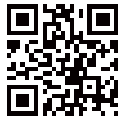
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

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Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code

Website



Wechat

To find your local partner within Semiware' s global website: www.semiware.com

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